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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,635	02/16/2005	Hiromitsu Takeda	050043	1491

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EXAMINER	
ZACHARIA, RAMSEY E	
ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
12/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/524,635	TAKEDA, HIROMITSU	
	Examiner	Art Unit	
	Ramsey Zacharia	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04 December 2007 has been entered.

Claim Rejections - 35 USC § 103

3. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 2002/0086926) in view of Friedman et al. (US 2003/0162028)

Fisher teaches an infrared absorbing resin comprising lanthanum hexaboride particles alone or in combination with doped tin oxide (paragraph 0015). The doped tin oxide may be doped with antimony (paragraph 0016). The resin may be polyvinyl butyral or other polymers which may be used to form interlayer sheets of glass laminates (paragraph 0021). The glass layers read on the matrix material of instant claim 6.

While Fisher does not disclose the concentration of particles in g/m^2, the concentrations disclosed by Fisher (i.e. lanthanum hexaboride of about 0.001-0.1 wt% and tin oxide of about

0.05-2.0 wt% - see paragraphs 0016-0017) should at least overlap the ranges recited in instant claims 1 and 6.

Alternatively, Fisher demonstrate that the concentrations of lanthanum hexaboride and tin oxide are variables that affect the degree of infrared absorbance of the resulting sheet (e.g. see Figure 2 and the Examples - particularly Example 6). That is, the concentration of particles is a results effective variable. Therefore, in the event that the concentration of particles is not inherently within the ranges recited in instant claim 4, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the concentration of particles, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980).

Fisher does not teach the use of a fluorine type resin as the interlayer resin. However, Fisher does teach that other resins which are conventionally used as interlayers may be employed.

Friedman et al. teach that polyvinyl butyral and fluoropolymers (i.e. fluorine type resin) may be used as interlayers in glazing laminates (paragraph 0002).

Friedman et al. show that polyvinyl butyral and fluoropolymers are known in the art as functionally equivalent polymers for forming glazing interlayers. Therefore, because these two polymers were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a fluoropolymer for the polyvinyl butyral of Fisher, particularly since Fisher explicitly teaches that other interlayer polymers may be used in place of polyvinyl butyral.

The amount of radiation transmitted through a material is a function of the composition of the material. Therefore, the sheet resulting from the obvious combination of Fisher taken in view of Friedman et al. should meet the limitations of claims 1 and 6 drawn to the degree of visible, solar, and UV light transmittance, since the obvious combination of Fisher taken in view of Friedman et al. illustrate a sheet formed of the same resin (fluorine type resin), containing the same heat shielding particles (lanthanum hexaboride or antimony-doped tin oxide), in the overlapping concentrations.

4. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kase et al. (US 5,925,453) in view of Kunimatsu et al. (US 5,807,511).

Kase et al. teach a film to be adhered to a window that absorbs infrared rays (column 1, lines 6-8). The film comprises an infrared absorbing layer formed of a transparent base film in which an infrared absorbing agent is incorporated (column 2, lines 35-38). The infrared absorbing agent may be inorganic, such as tin oxide or antimony oxide (column 2, lines 44-49). The transparent base resin may be a vinylidene fluoride resin, a vinyl fluoride resin, or a fluorocarbon resin (column 3, lines 10-26). The concentration of infrared absorbing agent is about 0.5-20 g/m^2 (column 2, lines 62-63). The visible light transmittance is in the range of about 10-80% and the infrared absorbency is about 80% or more (claims 2 and 3).

Kase et al. do not teach that the infrared absorbing agent is antimony doped tin oxide. However, Kase et al. do teach the use of inorganic agents and both tin oxide and antimony oxide are cited as suitable examples.

Kunimatsu et al. teach an infrared ray screening material which selectively cuts off near infrared rays while transmitting visible light (column 1, lines 8-12). The material comprises binder and an oxide powder (column 2, lines 30-35). The binder may be a fluorine resin (column 2, lines 36-44). The oxide powder may be antimony-doped tin oxide (column 3, lines 5-8).

One skilled in the art would be motivated to use the antimony-doped tin oxide powder of Kunimatsu et al. as the infrared absorbing agent of Kase et al. so that, since it not only absorbs infrared rays but also transmits visible light, the result infrared absorbing layer would have minimal impact on the visible light transmittance.

The amount of radiation transmitted through a material is a function of the composition of the material. Therefore, the sheet resulting from the obvious combination of Kase et al. taken in view of Kunimatsu et al. should meet the limitations of claims 1 and 6 drawn to the degree of visible, solar, and UV light transmittance, since the obvious combination of Kase et al. taken in view of Kunimatsu et al. illustrate a sheet formed of the same resin (fluorine type resin), containing the same heat shielding particles (antimony-doped tin oxide), in the same concentrations.

Response to Arguments

5. Applicant's arguments filed 04 December 2007 have been fully considered but they are not persuasive.

The applicant appears to argues that there are unexpected results associated with the claimed combination of lanthanum hexaboride and/or antimony-doped tin oxide as the heat shielding filler and a fluorine type resin as the base resin. MPEP 716.02 outlines the procedures

for establishing unexpected results. The allegation of unexpected results is not sufficient to overcome the rejections for at least the following reasons: (a) no comparison is made between the claimed invention and the prior art, (b) no evidence is cited to support the contention of unexpected results, and (c) the results that are presented are not commensurate in scope with the invention as claimed.

First, no attempt appears to have been made to compare the prior art relied upon in the rejections with the claimed invention. Reference is made to films employing polyethylene terephthalate as the base resin, however this does not constitute a comparison of the closest prior art as Fisher does not use polyethylene terephthalate and Kase et al. explicitly teach the use of several fluorine type resins.

Second, the only hard data presented is Figures 1 and 2 of the instant application which illustrate the transmittance of ETFE films containing undisclosed amounts of lanthanum hexaboride (Figure 1) or antimony-doped tin oxide (Figure 2). The applicant alleges that the combination of lanthanum hexaboride and/or antimony-doped tin oxide as the heat shielding filler and a fluorine type resin as the base resin exhibits three different characteristics (transmittance in the visible light region, absorption in the IR region, and transmittance in the UV region) simultaneously. However, there is nothing on the record demonstrating that only these materials exhibit such properties. Moreover, without knowing the concentrations in the samples depicted in the Figures it is not possible to know if the Figures are even illustrating embodiments of the claimed invention.

Lastly, it is noted that all the Examples provided in the instant specification utilize ETFE as the base resin. This is in contrast to the invention as claimed which requires the base resin to

merely be a fluorine type resin. Moreover, the concentrations of heat shielding filler of lanthanum hexaboride and antimony-doped tin oxide in the Examples is in the range of 0.05-0.13 g/m^2 for lanthanum hexaboride and 2.0-4.5 g/m^2 for antimony-doped tin oxide while the claims recite the substantially broader ranges of 0.01-1 g/m^2 for lanthanum hexaboride and 1.0-50 g/m^2 for antimony-doped tin oxide. It should be noted that, in each case, the claimed upper limit is about an order of magnitude greater than the tested upper limit.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye, can be reached at (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ramsey Zacharia
Primary Examiner
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